

# Should You Go to Graduate School?

BY NANCY MCGUIRE

**Y**ou're getting your bachelor's sometime in the next year or two, the job market still looks bleak, and all the ads for jobs you're interested in feature the words "Ph.D. and three years of experience." You thought you could hang up the book bag after you got your diploma, but now you're wondering if that B.S. degree is going to be enough. Should you start looking at graduate schools?

## Motivating factors

First, let's look at some of the reasons that graduate school might make sense. If you've decided that basic research or a faculty position at a four-year college or university is in your future, then a graduate degree — specifically, a Ph.D. from a respected university — is pretty much a requirement. If you love to learn, and you want to explore your field more deeply than you could in undergraduate school, that too is a fairly strong argument for going to graduate school. You might want to explore a master's program, if you're not sure you want to go for the Ph.D. If you're fairly certain about the field you want to enter, and your research shows that a graduate degree will open up specific opportunities, that's a good reason, too. Perhaps a Professional Science Master's degree or a postgraduate certificate program could work for you.

If you're getting your bachelor's degree from a small school in a geographical area dominated by large, well-known universities, getting noticed in a competitive job market could be difficult. You could complete a graduate degree program as a way of building up your credentials — or you could look for work in a less competitive part of the country.

If you're looking for a place to ride out the bad job market, or if you have no idea what you want to do, career-wise, getting into graduate school right now could be a costly sidetrack. Signing up for an internship or taking that job in your uncle's bakery might be just what you need to give yourself time to gather your thoughts and earn some money. Often, just stepping away from the books for a while and experiencing the workaday world is enough to start bringing your longer-term career goals into focus — or show you what you *don't* want to be doing for the rest of your career.

Let's say that you've cleared those hurdles, and grad school is looking pretty good to you. What kinds of practical things should you consider to make this a reality?

## Preparing to take the plunge

Although graduate programs share the same campuses, faculty members, and major fields with their undergraduate



What's my best option?



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counterparts, in many ways, you'll be stepping into a different world. Graduate students are older, and in many cases, they have been out of school for a while and are returning to academia with better-defined goals and a sharper sense of purpose than their undergraduate counterparts. Grad students can party, play sports, and pursue hobbies with the best of them, but they are less likely to be in school because their parents required it or because they have nowhere better to be. They are more likely to be funding their own education, and they are willing to put in the long hours and extra effort that a graduate degree requires.

Before you sign on with a graduate program, take a careful look at the time and money that this endeavor will require. Grad students in engineering and the physical and life sciences usually have access to teaching and research assistantships that cover a significant part of tuition and living expenses. Universities also offer student services, from walk-in clinics to on-campus housing, at a nominal cost. On the other hand, textbooks tend to be more expensive at the graduate level,

## DOING YOUR RESEARCH

### Industry sectors, educational requirements, and typical income

- U.S. BUREAU OF LABOR STATISTICS  
OCCUPATIONAL OUTLOOK HANDBOOK  
[www.bls.gov/ooh/a-z-index.htm](http://www.bls.gov/ooh/a-z-index.htm)

### Chemistry-specific employment and income statistics

- ACS SALARIES & SURVEYS  
[www.acs.org/content/acs/en/careers/salaries.html](http://www.acs.org/content/acs/en/careers/salaries.html)

### Getting into graduate school and getting research experience

- ACS COLLEGE TO CAREER NEXT STEPS  
[www.acs.org/content/acs/en/careers/college-to-career/next-steps.html](http://www.acs.org/content/acs/en/careers/college-to-career/next-steps.html)
- ACS PREPARING FOR GRADUATE SCHOOL  
[www.acs.org/content/acs/en/education/students/graduate/gradschool.html](http://www.acs.org/content/acs/en/education/students/graduate/gradschool.html)

### Choosing a school, the application process, and what to expect

- ACS GRADUATE SCHOOL REALITY CHECK  
[www.acs.org/content/dam/acsorg/education/students/graduate/gradschool/graduate-school-reality-check.pdf](http://www.acs.org/content/dam/acsorg/education/students/graduate/gradschool/graduate-school-reality-check.pdf)
- WEBINAR SERIES, PART 1  
[www.youtube.com/watch?v=nnOF5XOikpA](http://www.youtube.com/watch?v=nnOF5XOikpA)

support before you begin is critical to your success. This is especially true if your family must move with you to the town where your university is.

Are you planning to enter a field where the jobs are concentrated in one geographical area? If so, are you (and your family) willing to live where the jobs are? Many chemical manufacturing companies are located on the Gulf Coast. Many pharmaceutical companies are located in the Northeast. Software developers gravitate toward Silicon Valley. Academic positions usually require you to live in the town where the college or university is located. Although you can find positions in other locations, you are more likely to be able to advance and switch companies (after a job loss or otherwise) if you live in an area where several companies in your field are located.

If you will be leaving a full-time job to return to school, develop a budget that reflects your grad-school income level. Think through the implications of being out of the workforce for several years — will the advance in career satisfaction and job status after you graduate be enough to compensate for the loss of income and advancement while you're in school? Of course, no one can know for certain what the future holds, but it's worth giving it some thought.

### Focus, with flexibility

"I'm only 19. How can I pick something that I can do for the rest of my life?" The short answer is, you probably won't be doing any one specific thing for the rest of your life. School should equip you with a set of basic abilities, like identifying interesting problems to work on or designing experiments to tackle specific questions. As you progress through your career, you will be adding other skills and abilities and discovering new areas that interest you.

You can't know everything going in, but it helps to have a general sense of direction. Will you be training for a specific industry sector or career path? Are you interested in a specific field of research? Are you more interested in generating new knowledge, or applying existing knowledge? Focusing on one specific direction will help you choose the best graduate program for you, and it will help you stay on course to finish your degree. At the same time, remember that you're picking this one area as a way of focusing in, not shackling yourself permanently to one possibility.

Some graduate programs focus on preparing students for jobs in specific industry sectors. More commonly, graduate students focus on research projects in a very specialized area, becoming world experts in their own particular niches. Success in the larger career world requires choosing a graduate research area that, even though it's narrowly focused, supports progress toward a long-term objective and picking up experience that will be useful later on.

For example, your research project could require you to become very proficient in the use of one or more types of

and even a macaroni-and-cheese budget will probably require some supplemental funding from student loans, personal savings, a gainfully employed spouse, or a family benefactor.

Some graduate programs, particularly at the master's level, are designed for part-time students who are also holding down jobs. The drawback here is that completing these degrees can take a very long time, and balancing the demands of a job with even one or two classes a semester (not to mention a research project) can be exhausting. Doctoral programs generally require you to be a full-time student, although it's not unheard of for doctoral students to bring in a little extra money as tutors, bartenders, freelance photographers, or other types of work.

Even if you're not holding down a job while you study, graduate studies are a major investment of time and energy. If you have a spouse and children, they may begin to feel your absence acutely as you get deeper into your studies and research program. Your children may be too young to fully understand what's going on, but getting your spouse's

laboratory instruments, or you could learn to write computer programs and create visualizations of your data. You could master a particular type of synthesis and apply this knowledge to designing new synthesis methods. Perhaps your knowledge of statistics gives you the ability to evaluate published studies to see whether the results support the authors' claims. Critical thinking, problem solving, independent research, and collaboration skills are all things that you can apply in any career you might find yourself in.

Choosing a specific area of interest will help you research the type of educational background needed to land a job in that area, as well as select a type of graduate program and a few candidate schools. Be aware, however, that your chosen field could undergo a rapid and unexpected expansion or contraction while you're working on your degree, and the job market could look very different by the time you graduate. If the career sector you're preparing for takes a nose-dive while you're in school, it may be hard to change directions. Building in some flexibility will help you adapt.

### Making the decision

For some new graduates, moving on to graduate school is a foregone conclusion. For the rest of us, it's a major decision that requires some idea of why you're undertaking this effort. Your reasons and motivations might change over time, but

some sense of focus and purpose are essential to choosing a graduate program that fits your needs and to staying motivated over the long run. Having a general idea of the time and financial resources you will need and how to gather those resources will help you go in with a sense of confidence. For many people, taking some time to work after their bachelor's degree gives them this sense of direction, and it allows them to build up their resources before returning to school.

Even though many graduate programs focus on exploring one specific area of research or preparing for one specific industry sector, a sense of flexibility will be necessary after you graduate. Industries change, your interests evolve, and new fields emerge. Bear this in mind, keep your eyes and ears open, and enjoy the ride. **K**



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## ACS Directory of Graduate Research DGRweb

- >> Facilitates Research Collaborations in the Chemical Sciences
- >> Enables Networking Across Chemical Subdisciplines
- >> Helps Students with Selecting a Graduate Program
- >> Identifies Research Experiences for Undergraduates (REUs)

Conduct free online searches at [www.acs.org/dgrweb](http://www.acs.org/dgrweb).

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- > Chemistry
- > Chemical Engineering
- > Biochemistry
- > Medicinal/Pharmaceutical Chemistry
- > Polymers and Materials Science
- > Toxicology
- > Marine Science
- > Environmental Science

### FIND INFORMATION ON:

**673**  
academic departments

**8,846**  
faculty members